

Unit Planning Guide: Grade 6 Unit 3 of 8

Unit Title: Expression and Equations	Pacing (Duration of Unit): 5 weeks
Grade: 6	Buffer Day(s):

Transfer Goals

Students will be able to independently use their learning to:

- Make sense of problems and persevere in solving them.
- **Reason abstractly and quantitatively.**
- Construct viable arguments and critique the reasoning of others.
- Model with mathematics.
- Use appropriate tools strategically.
- Attend to precision.
- **Look for and make use of structure.**
- **Look for and express regularity in repeated reasoning.**

Established Goals (2011 MA Curriculum Frameworks Standards Incorporating the Common Core State Standards)

Standards (Priority Standards in bold):

- 6.EE.1** Write and evaluate numerical expressions involving whole-number exponents.
- 6.EE.2** Write, read, and evaluate expressions in which letters stand for numbers.
- Write expressions that record operations with numbers and with letters standing for numbers. For example, express the calculation "Subtract y from 5" as $5 - y$.**
 - Identify parts of an expression using mathematical terms (sum, term, product, factor, quotient, coefficient); view one or more parts of an expression as a single entity. For example, describe the expression $2(8 + 7)$ as a product of two factors; view $(8 + 7)$ as both a single entity and a sum of two terms.**
 - Evaluate expressions at specific values of their variables. Include expressions that arise from formulas used in real-world problems. Perform arithmetic operations, including those involving whole-number exponents, in the conventional order when there are no parentheses to specify a particular order (Order of Operations). For example, use the formulas $V = s^3$ and $A = 6s^2$ to find the volume and surface area of a cube with sides of length $s = \frac{1}{2}$.**
- 6.EE.3** Apply the properties of operations to generate equivalent expressions. For example, apply the distributive property to the expression $3(2 + x)$ to produce the equivalent expression $6 + 3x$; apply the distributive property to the expression $24x + 18y$ to produce the equivalent expression $6(4x + 3y)$; apply properties of operations to $y + y + y$ to produce the equivalent expression $3y$.
- 6.EE.4** Identify when two expressions are equivalent (i.e., when the two expressions name the same number regardless of which value is substituted into them). For example, the expressions $y + y + y$ and $3y$ are equivalent because they name the same number regardless of which number y stands for.

WIDA for English Language Learners

Standard 1: ELLs **communicate** for **Social** and **Instructional** purposes within the school setting

Standard 3: ELLs **communicate** information, ideas and concepts necessary for academic success in the content area of **Mathematics**

In the lesson planning stage, teachers will need to differentiate lessons for ELLs. In order to accomplish this they will need: 1.) this curriculum map, 2.) a list of their ELLs and their proficiency levels, and 3.) appropriate language function expectations and scaffolds or supports.

Big Ideas:	Essential Questions:
<ul style="list-style-type: none"> Variables can be used as unique unknown values or as quantities that vary. Exponential notation is a way to express repeated products of the same number. Algebraic expressions may be used to represent and generalize mathematical problems and real life situations Properties of numbers can be used to simplify and evaluate expressions. Algebraic properties can be used to create equivalent expressions Two equivalent expressions form an equation. 	<ul style="list-style-type: none"> If we didn't have variables, what would we use? What purposes do variable expressions serve? What are some advantages to being able to describe a pattern using variables?

Acquisition (*Mostly assessed through traditional summative assessments)	
<p>Knowledge: Key basic concepts, facts, and key terms (written in phrases) students should be able to recall independently.</p> <p><i>Students will know ...</i></p> <ul style="list-style-type: none"> Algebraic expressions can be used to generalize properties of arithmetic. Variables can be used as unique unknown values or as quantities that vary. Algebraic expressions may be used to represent and generalize mathematical problems and real life situations. That identifying parts of an expression using mathematical terms. 	<p>Skills: The discrete skills and process students should be able to use independently (<u>Bloom's Level of Learning should be noted in parentheses.</u>)</p> <p><i>Students will be skilled at:</i></p> <ul style="list-style-type: none"> Representing repeated multiplication with exponents (knowledge) Evaluating expressions containing exponents to solve mathematical and real world problems (evaluation) Translating verbal phrases and situations into algebraic expressions (application) Identifying the parts of a given expression (knowledge) Using the properties to identify equivalent expressions (knowledge) Using the properties and mathematical models to generate equivalent expressions (synthesis)

Vocabulary: <ul style="list-style-type: none"> • coefficient • equivalent expressions • exponent • expression • formula • constant 	<ul style="list-style-type: none"> • expression • Order of Operations • substitution • tape diagram • term • variable 	Knowledge Questions: <ul style="list-style-type: none"> • What is an equation? • What is an inequality? • How do I solve an equation? • How do I determine a solution set of numbers to solve an equation or inequality? • Why do we use letters to represent numbers in mathematics? • How do I write an equation from a given problem?